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# Navigating Turbulent Times: Earnings Management and ESG Performance During COVID-19

Bachelor Thesis

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## Abstract

The purpose of this study is to investigate the relationship between firms' environmental, social, and governance (ESG) performance and earnings management during the COVID-19 pandemic. The analysis uses the modified Jones model for discretionary accruals, augmented with return on assets, as a proxy for earnings management and employs panel regressions for the sample of 882 firm-year observations during 2017-2022 in the United States within the consumer discretionary industry. The results reveal that ESG combined scores have a negative and significant association with earnings management, whereas COVID-19 has a significant positive association. This means that high ESG performer firms tend to engage in less earnings management whereas during the pandemic more earnings management took place through discretionary accruals. However, ESG was not found to significantly moderate the relationship between COVID-19 and earnings management. These findings are useful for investors, policy-makers, and stakeholders to better understand earnings management practices during the pandemic. This study fills the gap in the academic literature by being the first attempt to explore the relationship between earnings management and ESG during COVID-19 in a single country and industry setting.

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# Chapter 1. Introduction

## **1.1 Research Problem and Motivation**

Over the years, the interest in sustainability has grown, and society now demands companies to act responsibly and contribute more towards a sustainable future, which can be measured by firms' Environmental, Social, and Governance (ESG) initiatives (Velte, 2019). ESG reflects the shift toward sustainable and responsible business practices, however, it often requires significant investments. Moreover, during times of financial hardship or global distributions, such as the COVID-19 pandemic, companies face a trade-off between spending resources on sustainability and protecting themselves from the risk of bankruptcy. Therefore, companies' management can manipulate earnings to look more profitable.

Several studies explored the relationship between earnings management and ESG (Velte, 2019; El-Feel et al., 2024; Mao et al., 2024) and earnings management behavior during the financial crisis (DeAngelo et al., 1994; Chintrakarn et al., 2018; Fisher et al., 2019; Lassoued & Khanchel, 2021). However, the results regarding these relationships are inconsistent. ESG and earnings management can be analyzed from two perspectives - stakeholder theory and agency theory. According to the stakeholder theory, companies with high ESG scores are less likely to engage in earnings management since they provide more accurate data to meet stakeholders' demands. On the contrary, agency theory argues that the relationship between ESG score and earnings management is positive since managers will act in their best interests. Regarding earnings management and financial crisis, one stream of literature supports the proposition that troubled firms are more likely to inflate profits to cover up the loss, and others argue that since firms are already making losses, managers can blame poor performance on global trends and not manage earnings. Therefore, it is important to investigate these relationships and provide new insights in the COVID-19 pandemic context.

## **1.2 Research Objective and Relevance**

Despite the growing body of ESG literature, there is limited academic research on the relationship between ESG scores and earnings management during the COVID-19 pandemic. Since COVID-19 is a recent event, researchers did not have enough available data to study this area in the past. For instance, El-Feel et al. (2024) examined this relationship but only included data up to 2021, suggesting future research to add another COVID-19 year. Therefore, this study aims to fill in the gap in the literature by addressing the limitations of previous research to explore the relationship between ESG performance scores and earnings management during the COVID-19 crisis with the proposed research question:

*What is the relationship between ESG combined scores and earnings management for the firms within the consumer discretionary industry in the United States during the COVID-19 pandemic?*

Moreover, previous studies either looked at ESG ratings or divergence scores (Mao et al., 2024), approximated ESG scores from raw data (Kim & Li, 2021), focused solely on the environmental part of ESG (Garel & Petit-Romec, 2021), or used total ESG scores (El-Feel et al., 2024). In contrast, this study utilizes ESG combined scores because they provide a more holistic approach to companies' financial and business sustainability dimensions, including controversial topics in calculating the scores, and do not require firms to be grouped into categories. Furthermore, this research has social and policy implications for stakeholders and policy-makers since the results, after exploring the relationship between ESG scores and earnings management during a crisis like COVID-19, will show whether companies focused on short-term profits more, advising investors to include ESG factors into their decision-making process and policymakers to enhance or revise existing regulatory frameworks to promote greater transparency and accountability.

### **1.3 Research Methodology**

To answer the research question, three hypotheses are developed, and panel regression models are performed for each of them. Fixed and random effects models, as well as t-tests and Wilcoxon rank-sum tests, are utilized to find the results. The data consists of a sample of 882 firm-year observations of the US companies in the consumer discretionary industry from the Refinitiv Eikon database. The period analyzed in the study is 2017-2022, where 2017, 2018, and 2019 are pre-pandemic and 2020, 2021, and 2022 pandemic years.

### **1.4 Research Outline**

The remainder of the paper is organized the following way: Chapter 2 comprises a comprehensive literature review, where the most relevant articles about the topic are discussed and analyzed; this theoretical framework will serve as the foundation for developing hypotheses. Chapter 3 delves into the data and methodology, defining the variables used and the data analysis techniques applied. Subsequently, Chapter 4 presents the results and explains the key findings. Finally, Chapter 5 concludes the paper, addressing limitations and offering recommendations for future research.

## Chapter 2. Literature Review and Hypotheses Development

The goal of this chapter is to provide an extensive overview of the previous research on earnings management, ESG performance, and the COVID-19 pandemic with a stronger focus on the relationship between each of these variables. Hence, the literature review section will aid the development of a theoretical framework for research hypotheses and present relevant theories. This chapter focuses on the discussion of three main research areas. The first stream of literature relates to earnings management and ESG, the second to earnings management and COVID-19, and the third one connects all three concepts.

### **2.1 Earnings Management and ESG**

Earnings management takes place when managers can opportunistically manipulate accounting numbers even when restrictions exist to look more profitable (Fields et al., 2001). Manipulation in the reporting usually comes from an artificial inflation of revenues or a decrease in expenses (Beneish, 1999). There are a few reasons why earnings management can occur. For example, managers are willing to increase their compensations, influence stock market perceptions, and avoid regulatory scrutiny (Healy & Wahlen, 1998). Some managers rationalize their misbehavior by comparing themselves to others and concluding that, on relative terms, managing earnings is not inappropriate (Brown, 2014). Another rationale for managers to inflate a firm's profit is an increased stock price to attract more investors; if the external investors cannot detect this misleading behavior, earnings management strategies succeed (Kothari et al., 2016).

Relating earnings management to ESG, the demand for ESG practices can pressure firms due to the high cost of sustainable solutions (Almsh & Khatib, 2023). Therefore, firms started to charge more for sustainably produced products to offset the expenses incurred from additional investments. Although people are ready to pay a premium for sustainable products, their willingness declines with higher prices (Financial Times, 2023), especially in countries with high inflation rates (Pieters et al., 2022). Hence, ESG-oriented firms investing heavily in global causes might be incentivized to engage in earnings management to appear more profitable and make up for the losses incurred by their sustainable investments.

Despite the growing interest in ESG practices, there is yet not much prior research done on the relationship between ESG and earnings management. Nevertheless, there are studies conducted on corporate social responsibility (CSR) and earnings management (Kothari et al., 2005; Lins et al. 2017; Chen & Hung, 2021; El-Feel et al., 2024). ESG and CSR emphasize the importance of non-financial factors and aim to do good for society instead of solely focusing on profit maximization. Nevertheless, CSR is broader in scope, whereas ESG is often more

investor-focused. Since the definition of ESG is very similar to CSR, with the key distinction being that ESG specifically encompasses governance aspects (Mao et al., 2024), for the remaining literature review, these terms will be used interchangeably to help make conclusions.

Mixed results are present regarding the relationship between ESG and earnings management because of two contrasting perspectives: 1) stakeholder theory and 2) agency theory. Following stakeholder theory, firms are expected to provide more transparent data and have higher earnings quality since more ESG-focused firms can better meet stakeholders' demands (Mao et al., 2024). The rationale behind this idea is that firms dedicated to ESG practices prioritize transparency and are more long-term sustainability-focused rather than realizing short-term financial gains. Therefore, companies with high ESG scores would be less likely to engage in earnings management.

Analyzing 6073 firm-year observations of Chinese listed firms from 2009 to 2021 using a modified Jones model, Mao et al. (2024) argue that high CSR and ESG promote integrity, ethical behavior, and stakeholders' interests, enhancing profitability and corporate value. The authors show that earnings management decreases when firms have good ESG performance. Chen and Hung (2021) also support the stakeholder theory using a sample of Taiwanese non-financial publicly traded companies from 2010-2014. Through regression analysis following the methodology by Kothari et al. (2005), the authors find that CSR and both accrual and real-based earnings management are negatively associated. This suggests that high CSR performance deters earnings management practices. Moreover, Kim and Li (2021) argue that ESG scores are positively associated with corporate profitability, using observations of the firms across all industries between 1991-2013, meaning that high ESG scores can increase firm value. Therefore, companies with high ESG performance should be less inclined to engage in earnings management because they are already more profitable than the low ESG performance companies. Additionally, if ESG proxies transparent disclosure, Cassell et al. (2015) find that companies with high ESG scores exhibit lower levels of accruals-based earnings management.

On the other hand, from the agency theory perspective, the relationship between ESG score and earnings management is positive since firms aim to maximize shareholder value. Moreover, managers can act in their best interests, thus engaging in opportunistic earnings management to increase their wealth (Aqabna et al., 2023). High ESG can shift the attention from earnings manipulation, allowing managers to influence earnings unnoticeably (Prior et al., 2008). Hence, following this theory, to get personal benefits, managers will initially prioritize ESG initiatives and then opportunistically engage in earnings management using a high ESG reputation (Mao et al., 2024).

Moreover, managers can misuse high ESG scores to rely on the fact that those firms promote transparency and integrity and hence engage in less earnings management and abuse the stakeholder trust (Kim et al., 2012; Hemingway & Maclagan, 2004). With increasing initiatives of countries to make sustainability reporting mandatory and the European law of Corporate Sustainability Reporting Directive, requiring firms to publish reports regarding the social and environmental risks and their impact on the people and the environment (European Commission, 2024), further suggests that the agency theory approach might prove to be more applicable since managers will be evaluated by their firm's ESG performance as well, allowing them to inflate earnings. To shed light on this issue, the following hypothesis is tested:

*H1: ESG combined scores positively affect earnings management*

## **2.2 Earnings Management and COVID-19**

Earnings reports can give out important information about the firm's performance and even impact competitor sales (Einhorn et al., 2018), incentivizing managers to manipulate both their and rivals' earnings. According to Graham et al. (2004), after the profit of a firm falls below the benchmark, managers engage in earnings management to make their company look financially healthier; if other firms do not replicate, they will present worse results, incentivizing earnings smoothing. Therefore, during turbulence and crises, firms might manage their earnings more because they are making losses.

The COVID-19 pandemic affected everyone, yet it affected industries unevenly. According to The Global Industry Classification Standard (2023), the Consumer Discretionary Sector is most sensitive to economic cycles, whereas the Consumer Staples Sector is the least. Therefore, earnings management varies across industries. Chintrakarn et al. (2018) argue that during the crisis, firm performance declines so severely that earnings management will not outnumber such loss; hence, they do not engage in profit manipulations, attributing poor performance to the crisis instead. Thus, firms within the Consumer Discretionary Sector should engage in less earnings management because COVID-19 was a common shock. Using the sample of 76 New York Stock Exchange firms, DeAngelo et al. (1994) find that troubled firms have large negative accruals and managers make accounting choices given their firm's financial health instead of inflating profits for their interest. Nevertheless, following the logic by Graham et al. (2004), based on the conclusions drawn from executive surveys conducted across 401 different US firms, earnings management occurs in all consumer discretionary firms during crises due to social pressure and competition. Additionally, another theory by DeAngelo (1988) suggests that with persistent earnings problems, managers will engage in income-increasing activities to avoid external interventions and keep their jobs.

Furthermore, using Chinese firms during 2005-2008 after the split share structure reform using a modified Jones model, Hou et al. (2015) find that firms manage their earnings to fulfill performance objectives, with less profitable firms more likely to do so. Therefore, managers are expected to engage in aggressive earnings management during COVID-19. Fisher et al. (2019) argue, using a sample of 261 US firms that filed for Chapter 11 between 1995-2009 and a performance-matched discretionary accruals model, that before bankruptcy, managers manipulated earnings to cover poor performance and avoid losing jobs or reduced compensation. As many firms, especially small businesses, are faced with the potential economic loss and the risk of bankruptcy during COVID-19 (Walsh, 2020), earnings management practice is anticipated to take place. Moreover, Lassoued and Khanchel (2021) find that EU firms, listed in 15 European countries, provide less accurate financial reports during the COVID-19 pandemic to look better in the eyes of investors and stakeholders. The same conclusion is present in the study by Yan et al. (2022), where during COVID-19, from the sample of 8832 China's A-share listed companies, an increase in accrual-based earnings management is observed, especially the ones with higher financial constraints. Following this reasoning, the second hypothesis is formulated as follows:

*H2: Firms engage in more earnings management during COVID-19.*

### **2.3 Earnings management, ESG performance, and COVID-19**

Although the topic of ESG is getting more attention from researchers, the literature about the relationship between earnings management, ESG performance, and financial crisis is very scarce, especially with the focus on the COVID-19 pandemic. However, some studies find evidence for an increased stock return for ESG-focused firms during financial shocks and COVID-19 and ESG reducing the negative effects of the crisis, meaning that ESG initiatives are positively associated with firms' financial performance. According to Almosh and Khatib (2023), during crises, firms care about their image and reputation, motivating proactive ESG actions that foster customer loyalty. Albuquerque et al. (2020) also highlight the importance of customer loyalty and put forward a theory that if ESG activities are based on customers, during a shock, because of customer loyalty, ESG firms will perform better because they can charge higher prices due to lower price-elastic demand. Therefore, firms with high ESG performance should have less incentive to manipulate profits since they already earn more.

Firms with high ESG scores are usually perceived as less risky and more resilient during economic downturns because ESG-focused firms signal superior management quality and a long-term orientation. According to Lisin et al. (2022), who explore the impact of ESG on the bankruptcy probability of 691 North American companies, ESG performance positively influences the business's operations, and companies with strong ESG performance have a



slightly lower risk of going bankrupt, resulting in increased financial stability. Therefore, the firms with a high ESG score should engage in less earnings management during the COVID-19 pandemic because they will be more resilient to crises.

Garel and Petit-Romec (2021), using 1626 US-listed companies, although only focusing on the environmental part of ESG, argue that investors attach more value to the firms that act environmentally responsible, especially during the COVID-19 pandemic. Lins et al. (2017) found that during the 2008 crisis in the US, approximating CSR using ESG ratings excluding controversies and governance, firms with good CSR reputations outperformed firms with lower CSR intensity. Therefore, investors will shift their attention towards ESG-focused stocks, meaning those firms will perform better and have less incentive to engage in earnings management. Comparing high and low ESG portfolios across Chinese firms, Broadstock et al. (2021) find that the stocks with a high ESG performance have more resilience to crises and hence, higher short-term returns. Therefore, it can be argued that ESG performance mitigates negative risks during crises, leading to the proposition that ESG performance can moderate the relationship between the COVID-19 pandemic and earnings management.

The study by Almosh and Khatib (2023) supports this opinion. Using nine of the G20 countries during 2016-2021, the authors investigate the effect of COVID-19 and ESG scores on the firm's financial performance and find that the COVID-19 pandemic negatively impacts financial performance, but ESG mitigates this negative effect. Using observations from 47 countries from 2014-2020, El-Feel et al. (2024) also find that accrual-based earnings management is not present in firms with higher CSR performance during the pandemic, while firms with a lower CSR engage in more earnings management. Given this discussion, the third hypothesis is proposed:

*H3: ESG negatively moderates the relationship between COVID-19 and earnings management.*

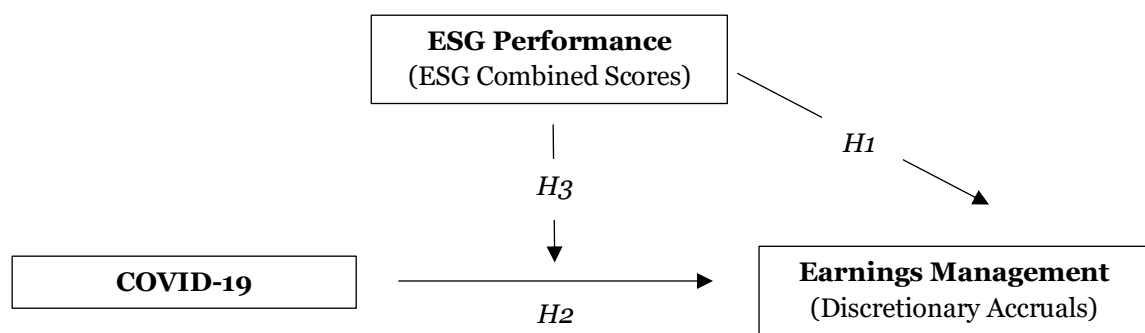


Figure 1. Research Framework

## Chapter 3. Data and Methodology

### 3.1 Research Design

The data for this research consists of all companies within the consumer discretionary industry with a country of incorporation in the United States. The study period is between 2017-2022, where 2017-2019 are pre-COVID-19 and 2020-2022 are pandemic years. The panel data is collected from the Refinitiv Eikon database. The final sample is 882 firm-year observations after removing companies with missing values from the initial 4,386 observations. Drawing on previous research, regression analysis is utilized to test three hypotheses. Particularly, panel data regressions are employed using fixed and random effects models. Additionally, to get initial insights into the firms' accounting choices during COVID-19 for the second hypothesis, t-tests and Wilcoxon rank-sum tests are performed.

### 3.2 Variable measurement

#### 3.2.1 Measurement for Earnings Management

Total accruals consist of discretionary and non-discretionary accruals. Discretionary accruals indicate that managers shift earnings between periods, constituting managerial manipulation, whereas non-discretionary accruals cannot be manipulated since they are beyond the managers' influence (El-Feel et al., 2024). Therefore, discretionary accruals will serve as a proxy for earnings management, which is calculated using the modified Jones model (1991) but follows the approach by Kothari et al. (2005) to augment the model with return on investment (ROA); this model compares firm's accruals to industry benchmarks and considers industry-specific factors. The Jones model is less preferred over the modified Jones model because the latter assigns the entire change in receivables to earnings management and allows for better detection of earnings manipulation (Kothari, 2005). Moreover, following the logic by Dechow et al. (1998) and Barber and Lyon (1996), ROA controls for the impact of performance on the observed discretionary accruals, and matching based on an operational performance metric like ROA generally yields superior results.

Nevertheless, earnings management can be calculated using other proxy models such as the Healy (1985) and DeAngelo (1986) models. However, if the non-discretionary part of the total accruals changes over time, the model will measure earnings management with big errors (Dechow et al., 1995). It is expected that the COVID-19 shock affected non-discretionary accruals although it is not due to managerial manipulation. Therefore, the non-discretionary accruals of the firms change over time, making the modified Jones model more preferable than the Healy and DeAngelo models. Hence, the model to calculate earnings management used in this study has the following form:

$$\frac{TA_{it}}{ASSETS_{it-1}} = \beta_0 + \beta_1 \frac{1}{ASSETS_{it-1}} + \beta_2 \frac{\Delta REV_{it} - \Delta REC_{it}}{ASSETS_{it-1}} + \beta_3 \frac{PPE_{it}}{ASSETS_{it-1}} + \beta_4 ROA_{it} + \varepsilon_{it}$$

Where:

$TA_{it}$  = Total accruals in year t (net income - cash flows from operating activities in year t)

$ASSETS_{it-1}$  = Total assets in year t-1

$\Delta REV_{it}$  = Change in revenues in year t

$\Delta REC_{it}$  = Change in receivables in year t

$PPE_{it}$  = Gross property, plant, and equipment in year t

$ROA_{it}$  = Return on assets in year t, measured as net income divided by total assets

$\varepsilon_{it}$  = Residuals

i = company identifier number

The residuals determine the value of discretionary accruals that reflect earnings management, the difference between total and non-discretionary accruals. The absolute value of discretionary accruals is used to assess the extent of earnings management undertaken by the companies because it measures the magnitude of earnings management, indicating the intensity of earnings manipulation in a given period (El-Feel et al., 2024). To alleviate issues with heteroscedasticity, all variables in the model are standardized by lagged total assets (t-1) as suggested by prior literature (Lassoued & Khanchel, 2021; El-Feel et al., 2024).

### 3.2.2 Measurement for ESG

The firm's ESG performance is measured using Refinitiv's ESG combined scores. Choosing this metric over other measures for companies' performance has several advantages. Since this metric is standardized, it allows for industry-wide comparison of different companies (Refinitiv, 2022). Moreover, unlike regular ESG scores, ESG combined scores also account for 23 ESG controversial topics reported in global media that impact ESG performance; this score is calculated using automation, and hence, possible subjectivity is avoided. Additionally, ESG combined scores provide a more holistic approach to companies' financial and business sustainability dimensions, allowing stakeholders to have a comprehensive view of the firm's ESG performance; hence, aggregated ESG combined scores provide a better picture of the company's ESG performance across all three ESG dimensions than individual ESG scores. ESG combined score ranges from 0 to 100, with scores 0 being the worst and 100 being the excellent relative ESG performance (LSEG, 2024).

### **3.2.3 Measurement for the COVID-19 pandemic**

To measure the effect of the COVID-19 pandemic on earnings management, a dummy variable is included in the regression analysis. According to Northwestern Medicine (2023), the first COVID-19 cases in the United States were reported in January 2020. Therefore, the dummy variable Covid is 0 if the corresponding year is 2017-2019, and 1 if 2020-2022.

### **3.2.4 Control Variables**

Other variables that may also impact earnings management and influence the relationship between the variables of interest should be controlled. The first control variable is a BIG4 dummy, which equals 1 if the firm is audited by Big4 auditors in year  $t$  or 0 otherwise. The reason is that when the auditing is done by the Big4 companies (Deloitte, KPMG, EY, PwC), the financial statements are assumed to be accurate because those companies have a lot to lose in terms of litigation risks and reputation, meaning that the firms audited by Big4 engage in fewer earnings management (Becker et al., 1998; Fisher et al., 2019). Secondly, leverage (LEV) is controlled because it captures debt covenants and incentives for earnings manipulation (Beneish, 1999). Leverage is measured by dividing total debt by total assets. Firm size (SIZE) is included because it is assumed that larger firms can engage in more earnings management since they have a larger scale of transactions and assets (Lassoued & Khanchel, 2021). Firm size is measured using the natural logarithm of total assets.

The market-to-book (MTB) ratio, measured by the total market value of equity divided by the book value of equity, is used as a control variable to account for variations in growth opportunities (Gopalan & Jayaraman, 2012) because firms with less growth might be more inclined to engage in earnings management. Moreover, a firm's age (Age) is controlled because as Kim et al. (2012) argue, there is a potential positive impact of changes in both financial reporting behavior and CSR activity as a firm matures, resulting in less earnings management as the firm ages. This variable is measured by taking the natural logarithm of the years since the firm's initial public offering. Finally, following the prior literature (Velte, 2019; Harymawan et al., 2021; Zhang & You, 2024), board size (Board) is included in the regression to control for the possible influence on ESG performance and earnings management practices since firms with a larger board size can have better corporate governance and monitoring capabilities; hence it will constrain earnings management and have a positive effect on ESG. Board size is measured as the total number of members of the firm's board.

### 3.3 Data Analysis Method

Given that the data represents panel data, for the analysis the fixed effect and random effect regression models are used following the methodology by Gopalan and Jayaraman (2012), Chintrakarn et al. (2018), Al Amosh and Khatib (2023), and El-Feel et al. (2024). To analyze the impact of ESG performance on earnings management (EM), and test the first hypothesis, the regression model below is employed:

$$H1: EM_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 BIG4_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 MTB_{it} + \beta_6 Board_{it} + \beta_7 Age_{it} + \varepsilon_{it}$$

*Model (1)*

The following regression model is used to test the second hypothesis of whether firms engage in more earnings management during the COVID-19 pandemic:

$$H2: EM_{it} = \beta_0 + \beta_1 COVID-19_t + \beta_2 BIG4_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 MTB_{it} + \beta_6 Board_{it} + \beta_7 Age_{it} + \varepsilon_{it}$$

*Model (2)*

Finally, to test the third hypothesis about the moderation effect of ESG, along with ESG and COVID-19 independent variables, the interaction between ESG combined scores and COVID-19 as an independent variable is included; it depicts the effect of ESG on earnings management via COVID-19. The regression has the following form:

$$H3: EM_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 COVID-19_t + \beta_3 ESG_{it} \times COVID-19_t + \beta_4 BIG4_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 MTB_{it} + \beta_8 Board_{it} + \beta_9 Age_{it} + \varepsilon_{it}$$

*Model (3)*

### 3.4 Robustness Checks

Several robustness checks are performed to strengthen the reliability of the results reported. As a first robustness check, earnings management is calculated using a different proxy. The reason for not choosing Healy (1985) and DeAngelo (1986) models is provided in section 3.2.1. Therefore, an alternative proxy for discretionary accruals is determined by using the McNichols (2002) model, which combines methodologies proposed by Jones (1991) and Dechow and Dichev (2002). This model captures a significant aspect of earnings quality by offering an understanding of the relationship between accruals and cash flow. All variables are

divided by lagged total assets to mitigate heteroscedasticity problems and the regression has the following form:

$$TA_{it} = \beta_0 + \beta_1 OCF_{it-1} + \beta_2 OCF_{it} + \beta_3 OCF_{it+1} + \beta_4 \Delta REV_{it} + \beta_5 PPE_{it} + \varepsilon_{it}$$

Where:

$TA_{it}$  = Total accruals in year t (net income - cash flows from operating activities in year t)

$OCF_{it-1}$ ;  $OCF_{it}$ ;  $OCF_{it+1}$  = Cash flows from operating activities in year t-1, t, and t+1

$\Delta REV_{it}$  = Change in revenues in year t

$PPE_{it}$  = Gross property, plant, and equipment in year t

$\varepsilon_{it}$  = Residuals

i = company identifier number

Moreover, to validate the empirical results regarding the first hypothesis, Model (1) regression is re-run for each ESG pillar score – Environmental, Social, and Governance. Finally, to minimize causality issues, the lagged variable of ESG combined scores is used as suggested by Harymawan et al. (2021). Accordingly, the regression employed in hypothesis 2 is re-run using lagged ESG combined score values.

## Chapter 4. Results

### 4.1 Descriptive Statistics

Table 1 shows the descriptive statistics for the variables in the sample of 882 observations - 147 firms over 6 years. Some transformations were made to the initial sample consisting of 4,380 observations; particularly, companies with a missing value for the main and control variables and extreme outliers that indicated possible errors in data were removed. Furthermore, to control the influence of outliers, all continuous variables are winsorized at 1%; Appendix 1 presents the mean absolute error of Models (1), (2), and (3) using winsorized and non-winsorized values. Since winsorized variables have smaller mean absolute errors for all regressions, they are preferred. Variable definitions are presented in Appendix 2.

Regarding the main variables, earnings management, approximated by discretionary accruals, has an average of 0.05 and a standard deviation of 0.05, indicating variability in firms' engagement in earnings management, with some firms not participating in such activities, as suggested by the minimum value is very close to 0. ESG combined scores have a mean of 43.56, a satisfactory relative ESG performance, and a moderate level of reporting transparency. Environmental, social, and governance pillars have similar values as the ESG combined score. It is interesting to note that some companies score 0 in the environmental pillar, unlike the other two pillars where the minimum value is slightly above 9. The COVID-19 dummy variable, with a mean of 0.5, reflects three pre-pandemic and three pandemic year observations.

Among the control variables, the average level of financial leverage across firms is 0.34, with a standard deviation of 0.30 indicating some variability in leverage levels among these firms. The average firm size is 21.98 with a standard deviation of 1.28, implying most firms' sizes are clustered around the mean. The market-to-book ratio has a mean of 3.27 and a standard deviation of 7.84, indicating a large degree of variability within its values. The BIG4 dummy variable indicates that most companies in the sample are audited by one of the big four companies with a mean of 0.93. Board has a mean value of 9.64, indicating that most companies have around 9 board members. Finally, the mean value of 3.11 of variable Age shows that the average age of the firms in the sample is around 22 years.

*Table 1. Descriptive Statistics*

| Variable | Number of observation | Mean  | Standard Deviation | Minimum | Maximum |
|----------|-----------------------|-------|--------------------|---------|---------|
| ABS_EM   | 882                   | 0.05  | 0.05               | 0.00    | 0.27    |
| ESG      | 882                   | 43.60 | 17.31              | 10.54   | 85.36   |
| Soc      | 882                   | 47.20 | 21.29              | 9.21    | 94.22   |
| Env      | 882                   | 31.58 | 26.73              | 0       | 89.16   |
| Gov      | 882                   | 53.04 | 19.99              | 9.43    | 89.21   |
| Covid    | 882                   | 0.50  | 0.50               | 0       | 1       |
| MTB      | 882                   | 3.27  | 7.84               | -27.51  | 42.66   |
| LEV      | 882                   | 0.34  | 0.30               | 0       | 2.02    |
| SIZE     | 882                   | 21.98 | 1.28               | 19.12   | 26.14   |
| BIG4     | 882                   | 0.93  | 0.26               | 0       | 1       |
| Board    | 882                   | 9.64  | 1.99               | 5       | 14      |
| Age      | 882                   | 3.11  | 0.67               | 1.39    | 4.63    |

*Note.* The table is summary statistics for US companies in the consumer discretionary industry using Refinitiv Eikon data from 2017-2023. Variable definitions are in Appendix 2. Earnings management is measured using the modified Jones model by an absolute value of discretionary accruals. The Covid and the BIG4 dummies are given in proportions. SIZE is represented as the natural logarithm of total assets measured in Euros. LEV is the ratio of total liabilities to total assets. MTB is the ratio of the market value of equity to the book value of equity. ESG combined and individual pillar scores are assigned by Refinitiv. Board represents the total board members. Age is the natural logarithm of years since the initial public offering. There are 882 observations after removing missing values.

## 4.2 Correlation Analysis

Table 2 presents the results for the Pearson correlation matrix for earnings management, ESG combined scores, COVID-19, and control variables. All correlation coefficients between variables are lower than 0.8, meaning multicollinearity is not an issue for the analysis except for the relationship between ESG combined scores and social pillar scores. Moreover, the correlation between the other two pillar scores and ESG combined scores is high too. This can be explained by the fact that ESG combined scores consist of each pillar; therefore, a high correlation is present, and these variables will only be included in the regression analysis separately to avoid multicollinearity issues.

Furthermore, it is observed that ESG performance negatively and significantly correlates with earnings management, as opposed to the first hypothesis. On the other hand, the correlation between COVID-19 and earnings management is positive and significant, indicating that firms engage in more earnings management during the COVID-19 pandemic, which is also the prediction for the second hypothesis. It is observed that firm size, BIG4, board size, and firm age negatively correlate with earnings management, while leverage and market-to-book ratio positively correlate. Drawing conclusions from the previous literature regarding the direction of the control variables on earnings management, as discussed in section 3.2.4, the correlation results for BIG4, leverage, board size, and firm age are not surprising, whereas firm size and market-to-book ratio indicate a different direction than expected.



Table 2. Pearson Correlation Matrix

| Variable   | (1)       | (2)       | (3)      | (4)      | (5)      | (6)      | (7)       | (8)      | (9)      | (10)     | (11)     | (12)  |
|------------|-----------|-----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|-------|
| (1) ABS_EM | 1.000     |           |          |          |          |          |           |          |          |          |          |       |
| (2) ESG    | -0.136*** | 1.000     |          |          |          |          |           |          |          |          |          |       |
| (3) Soc    | -0.119*** | 0.854***  | 1.000    |          |          |          |           |          |          |          |          |       |
| (4) Gov    | -0.125*** | 0.613***  | 0.335*** | 1.000    |          |          |           |          |          |          |          |       |
| (5) Env    | -0.101*** | 0.784     | 0.764    | 0.325    | 1.000    |          |           |          |          |          |          |       |
| (6) Covid  | 0.089***  | 0.198***  | 0.157*** | 0.084*** | 0.235*** | 1.000    |           |          |          |          |          |       |
| (7) MTB    | 0.150***  | -0.012    | -0.016   | -0.0256  | -0.014   | 0.016    | 1.000     |          |          |          |          |       |
| (8) LEV    | 0.041     | 0.022     | 0.054    | -0.018   | 0.070**  | -0.009   | -0.192*** | 1.000    |          |          |          |       |
| (9) SIZE   | -0.149*** | 0.401***  | 0.492*** | 0.188*** | 0.560*** | 0.115*** | 0.034     | 0.153*** | 1.000    |          |          |       |
| (10) BIG4  | -0.117*** | 0.331***  | 0.263*** | 0.314*** | 0.270*** | 0.043    | -0.067**  | 0.070**  | 0.293*** | 1.000    |          |       |
| (11) Board | -0.191*** | 0.3292*** | 0.353*** | 0.156*** | 0.348*** | 0.043    | -0.073**  | 0.059*   | 0.531*** | 0.288*** | 1.000    |       |
| (12) Age   | -0.170*** | 0.300***  | 0.242*** | 0.236*** | 0.246*** | 0.124*** | -0.132*** | -0.083** | 0.201*** | 0.135*** | 0.314*** | 1.000 |

Note. Variable definition is presented in Appendix 2; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

### **4.3 Autocorrelation and Heteroskedasticity Analysis**

#### **4.3.1 Testing for Autocorrelation**

Before running the regressions, the Woolridge test is conducted to check for first-order autocorrelation in panel data because if the autocorrelation is present, it can make the coefficient of interest inefficient. Wooldridge test is performed for the regressions including ESG and Covid variables separately. The results in the last rows of Tables 3 and 4 show a test statistic of 0.002 with insignificant p-values, meaning that there is no first-order autocorrelation; hence, no additional lags of the variable are included in the regression.

#### **4.3.2 Testing for Heteroskedasticity**

Additionally, to check whether the error terms of the independent variables have constant variances in the regressions, the White test is used for Models (1), (2), and (3) to detect the possible heteroscedasticity, and in case homoscedasticity is not present, robust standard errors are used. The test results in Tables 3, 5, and 6 show high test statistics and significant p-values at a 1% significance level for all regressions, indicating that the null hypothesis of homoscedastic error terms is rejected. Therefore, to ensure an efficient estimator, robust standard errors are used in all models.

### **4.4 Regression Results**

This section presents the t-test and Wilcoxon rank-sum test results, and the outcomes for the regressions used to test the proposed hypotheses. To account for firm-specific factors, all regression models include the market-to-book value, leverage, firm size, a Big4 auditor dummy, board size, and firm age as control variables.

#### **4.4.1 Hypothesis 1 - Relationship between ESG and EM**

To test the first hypothesis of whether high ESG combined scores positively affect earnings management, the multivariate regression analysis is performed. Since the observations make panel data, a Hausman test is conducted to choose between fixed and random effects models because pooled OLS can be biased and inconsistent if there is unobserved heterogeneity correlated with the predictors. As shown in Table 3, the Hausman test statistic is 18.28 with a p-value less than 0.05; hence, the fixed effects model is used for Model (1).

Accordingly, Table 3 presents the fixed effects regression results with earnings management as a dependent variable and ESG combined scores with controls as explanatory variables. However, the adjusted  $R^2$  is only 0.0217, meaning that the regression model explains approximately 2.17% of the variation in the dependent variable after adjusting for the number of predictors in the model and the sample size. The regression analysis shows a significant

negative coefficient for the ESG variable ( $\beta = -0.0004$ ,  $p < 0.05$ ), indicating that a one-unit increase in ESG combined score is associated with a 0.0004 unit decrease in earnings management. This suggests that firms with higher ESG combined scores are associated with less engagement in earnings management practices. Therefore, the first hypothesis that ESG scores positively affect earnings management is rejected because the regression results revealed a relationship opposite to what was initially expected.

*Table 3. Fixed effects regression results for the relationship between Earnings Management and ESG combined scores*

| Variables               | ABS_EM                |
|-------------------------|-----------------------|
| ESG                     | -0.0004**<br>(0.0002) |
| MTB                     | 0.0001<br>(0.0007)    |
| SIZE                    | -0.0018<br>(0.0072)   |
| LEV                     | 0.0025<br>(0.0274)    |
| BIG4                    | -0.0281**<br>(0.0138) |
| Board                   | -0.0006<br>(0.0019)   |
| Age                     | -0.0454*<br>(0.0257)  |
| Constant                | 0.2651<br>(0.1842)    |
| Year FE                 | YES                   |
| Adjusted R <sup>2</sup> | 0.0217                |
| Number of Observations  | 882                   |
| Hausman Test            | 18.2800**             |
| White Test              | 164.8220***           |
| Wooldridge Test         | 0.0020                |

*Note.* Year-fixed effects are accounted for in the regression. Number of observation is 882. Standard errors are in parentheses; \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

This finding, however, is consistent with stakeholder theory, which suggests that ESG practices emphasize transparency and long-term sustainability over short-term financial gains; hence, managers do not engage in earnings management. Although the exact direction was ambiguous from the previous literature, the findings in Table 3 advocate the approach by Kothari et al. (2005), Cassell et al. (2015), Chen and Hung (2021), and Mao et al. (2024), who argue that high CSR and ESG performance is a deterrent factor for earnings management. Moreover, it is found that the BIG4 auditor dummy is significantly and negatively related to earnings management, which implies that if the firm is audited by one of the Big 4 companies, it is associated with managing its earnings through discretionary accruals less. This conclusion aligns with prior findings by Becker et al. (1998) and Fischer et al. (2019) who argue that auditors object to management's accounting choices and care about their reputation, which decreases earnings management.

#### 4.4.2 Hypothesis 2: Relationship between COVID-19 and EM

To address the second hypothesis on the relationship between COVID-19 and earnings management, a t-test and Wilcoxon rank-sum test is performed initially, following the methodology by DeAngelo et al. (1994), Hwang et al. (2021), El-Feel et al. (2024). The t-test result in Table 4 indicates that the average earnings management before COVID-19 is significantly lower than the average earnings management during the COVID-19 years with a significant t-statistic of 2.6585. This demonstrates a difference in the magnitude of discretionary accruals between the pre-pandemic and pandemic periods, consistent with El-Feel et al. (2024). Similarly, the Wilcoxon rank-sum test revealed a significant difference in earnings management between the independent samples of the pre-pandemic and pandemic periods, with a p-value below 0.01 and a z-statistic of 3.1510. Specifically, earnings management during COVID-19 is significantly higher than before. This finding supports the second hypothesis that the pandemic impacts earnings management practices.

*Table 4. T-test and Wilcoxon rank-sum test for estimating the relationship between Earnings Management and COVID-19*

| Groups                       | ABS_EM    |
|------------------------------|-----------|
| Before Covid                 | 0.0454    |
| During Covid                 | 0.0546    |
| During – before (difference) | 0.0092    |
| t-statistic                  | 2.6585*** |
| z-statistic                  | 3.1510*** |

*Note.* Before COVID-19 and during COVID-19 display the means of the pre-pandemic and pandemic period groups, respectively. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

Table 5 presents the regression analysis results for the second hypothesis, which tests whether earnings management increases during the COVID-19 pandemic. The Hausman test p-value is above the 0.05 threshold, indicating a preference for using the random effects model. The Breusch and Pagan Lagrangian multiplier test also supports the random effects model with a significant p-value at the 1% level. The adjusted R<sup>2</sup> is 0.0783, implying that the model explains 7.83% of the total variation in earnings management.

The significant regression equation ( $\chi^2(7) = 31.07, p < 0.000$ ) has a significant positive coefficient for the COVID-19 variable ( $\beta = 0.0125, p < 0.001$ ). This indicates that COVID-19 is associated with an increase of 0.125 units in the absolute value of discretionary accruals, suggesting a higher intensity of earnings management during the pandemic period keeping other variables constant. Hence, the second hypothesis that COVID-19 increases earnings management is not rejected, aligning with the prior literature by Graham et al. (2004), Hou et al. (2015), Walsh (2020), Lassoued and Khanchel (2021), and Yan et al. (2022) all of which found that during the crisis, the reporting quality decreases because the managers want to look

more profitable than they are. Furthermore, the regression shows a significant negative coefficient for firm age. This supports the initial prediction that older firms engage in less earnings management as mature firms have higher CSR and earnings quality, consistent with Kim et al. (2012) and El-Feel et al. (2024).

*Table 5. Random effects regression results for the relationship between Earnings Management and COVID-19*

| Variables               | ABS_EM                |
|-------------------------|-----------------------|
| Covid                   | 0.0125***<br>(0.0032) |
| MTB                     | 0.0005<br>(0.0005)    |
| SIZE                    | -0.0036<br>(0.0023)   |
| LEV                     | 0.0105<br>(0.0081)    |
| BIG4                    | -0.0150<br>(0.0118)   |
| Board                   | -0.0017<br>(0.0016)   |
| Age                     | -0.0101**<br>(0.0046) |
| Constant                | 0.1797***<br>(0.0465) |
| Adjusted R <sup>2</sup> | 0.0783                |
| Number of Observations  | 882                   |
| Hausman Test            | 10.9800*              |
| White Test              | 143.3450**            |
| Wooldridge Test         | 0.0020                |

*Note.* Number of observation is 882. Standard errors are in parentheses; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

#### **4.4.3 Hypothesis 3: Relationship between ESG, COVID-19, and EM**

Table 6 displays the results for the third hypothesis, testing whether ESG moderates the relationship between earnings management and COVID-19. The Hausman test statistic of 11.81 is insignificant at a 10% significance level, meaning that the random effects model is more appropriate. The adjusted R<sup>2</sup> is 0.0771, meaning that 7.71% of the variation in earnings management is explained by the independent and control variables.

As opposed to the prediction, no significant moderating effect is found since the interaction term is not significant at a 5% significance level. Therefore, the third hypothesis is rejected. Notably, the coefficients of individual ESG and Covid variables become insignificant while a significant association was found in Tables 3 and 5. This suggests that ESG and COVID-19 each impact earnings management separately but not together. This finding is in line with El-Feel et al. (2024), who also did not find a moderating effect of CSR on the relationship between COVID-19 and earnings management.

*Table 6. Regression of COVID-19 and Earnings Management moderated by ESG combined scores*

| Variables               | ABS_EM                |
|-------------------------|-----------------------|
| ESG                     | -0.002<br>(0.001)     |
| Covid                   | 0.0144<br>(0.0096)    |
| ESG×Covid               | -0.0000<br>(0.0001)   |
| MTB                     | 0.0005<br>(0.0006)    |
| SIZE                    | -0.0028<br>(0.0022)   |
| LEV                     | 0.0104<br>(0.0080)    |
| BIG4                    | -0.0128<br>(0.0080)   |
| Board                   | -0.0016<br>(0.0016)   |
| Age                     | -0.0090*<br>(0.0048)  |
| Constant                | 0.1647***<br>(0.0453) |
| Adjusted R <sup>2</sup> | 0.0771                |
| Observations            | 882                   |
| Hausman Test            | 11.8100               |

*Note.* ESG×Covid is an interaction term between ESG combined scores and Covid. Number of observation is 882. Standard errors are in parentheses; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

#### **4.5 Robustness Checks**

To see whether the initial findings hold and increase reliability, robustness checks are performed. Firstly, Model (2) regression is re-run using McNichol's (2002) model for discretionary accruals. The robustness check result in Appendix 3 shows that the findings in Table 5 hold, even when earnings management is calculated using a different proxy. Nevertheless, the coefficient Covid is insignificant and the adjusted R<sup>2</sup> is slightly lower.

Additionally, to see how each individual ESG pillar scores affect earnings management, the regression Model (1) for the first hypothesis is re-run using each pillar score separately as explanatory variables instead of the ESG combined scores. The results, reported in Appendix 4, are similar to those using combined ESG scores. The social pillar's coefficient in column 2 is significant at the 5% level, like the combined ESG score in Table 3. However, the environmental and governance scores in columns 1 and 3 are insignificant, even at the 10% level. Nevertheless, the directions of all coefficients remain the same as reported in Table 3.

The insignificance of the environmental and governance scores indicates that these dimensions do not independently explain variations in earnings management. On the other hand, the significant coefficient of social scores highlights the importance of social practices

and responsibility in influencing earnings management behaviors; companies doing well in social aspects of ESG may be more transparent or ethical in their financial reporting.

Finally, following Harymawan et al. (2021) approach, to address endogeneity concerns, Model (1) is run using the lagged ESG combined scores instead of the current ESG values. Endogeneity occurs when an explanatory variable correlates with the error term, which can bias the estimated coefficients. By using lagged ESG combined score values, a common endogeneity concern of reversed causality is addressed. This can ensure that the direction of causality is from ESG scores to earnings management, as past values of ESG are unlikely to be influenced by current earnings management instances. The results in Appendix 5 show that the lagged ESG score coefficient is insignificant at the 10% level. This indicates that the initial finding is robust as past ESG values do not influence current values of earnings management.

## Chapter 5. Discussion and Conclusions

### 5.1 Discussion

This study explored the relationship between ESG performance, the COVID-19 pandemic, and earnings management. To address the research question, panel regression models were created for 882 firm-year observations, covering US companies' 2017-2022 financial years, within the consumer discretionary industry. The results from Model (1) suggest a negative association between ESG combined scores and earnings management. This outcome does not support the first hypothesis and indicates that firms with higher ESG performance are less likely to engage in earnings management practices. Nevertheless, the results align with the stakeholder theory that firms participating in ESG activities are more socially responsible and transparent in financial reporting to meet stakeholders' demands, associated with reduced engagement in earnings management practices. This finding is supported by previous studies by Cassell et al. (2015), Chen and Hung (2021), Kim and Li (2021), and Mao et al. (2024).

Regarding the relationship between the COVID-19 pandemic and earnings management, the regression results from Model (2) did not find evidence to reject the second hypothesis that during the COVID-19 pandemic firms managed their earnings through discretionary accruals more. One possible explanation is that managers are more likely to manipulate discretionary accruals to cover a firm's poor performance and protect jobs. This finding aligns with Lassoued and Khanchel (2021), Yan et al. (2022), and El-Feel et al. (2024) while contrasts with the findings of DeAngelo et al. (1994) and Chintrakarn et al. (2018), according to whom managers of the troubled firms are expected to engage in less earnings management.

Finally, to address the main research question, the interaction effect between ESG and Covid was included in Model (3). The results did not find a significant moderating effect of ESG performance. Thus, the third hypothesis, which predicted that ESG combined scores negatively moderate the relationship between COVID-19 and earnings management, is rejected. This result is similar to that of El-Feel et al. (2024), who also did not find a significant moderating role of ESG performance.

### 5.2 Limitations and Suggestions for Future Research

This study has several limitations. First, the sample is limited to the consumer discretionary industry. To generalize the results, it is recommended for future research to investigate the earnings management practices in other industries. Moreover, the study consists of only the US companies; hence, it would be insightful to research what role ESG performance plays and how the COVID-19 pandemic affects earnings management in developing or Oceanian



countries because these countries experienced the crisis differently. Finally, ESG metrics can be subjective and vary across different rating agencies. This study used Refinitiv's ESG scores; therefore, future research should use different ESG measurements to enhance findings and offer valuable insights into the relationship between ESG performance, the COVID-19 pandemic, and earnings management globally.

### **5.3 Research Implications**

This study has several social and scientific implications. It contributes to the academic literature that lacks research on the relationship between earnings management, ESG performance, and COVID-19. Although some papers discussed earnings management links to ESG/CSR (Kothari et al., 2005; Cassell et al., 2015; Chen & Hung, 2021) and financial crisis (DeAngelo et al., 1994; Hou et al., 2015; Fisher et al., 2019; Lassoued & Khanchel, 2021; Mao et al., 2024), there is not enough prior work done on the link between all three variables. The research by El-Feel et al. (2024) has a similar objective but focuses on different settings, 47 countries across various industries. Therefore, this study adds to the growing body of literature on ESG and earnings management, providing empirical evidence from the context of the COVID-19 pandemic in the United States.

As for the social implications, the findings underscore the importance of ESG performance in fostering ethical business practices and enhancing stakeholder trust. Firms with higher ESG scores are associated with less engagement in earnings management practices, promoting transparency and accountability. This insight is valuable for investors, recommending they consider firms' ESG scores when making investment decisions. Stakeholders should also be cautious when assessing firm performance during crises, as financial reports may not always be accurate. Auditors should also be more vigilant in detecting misstatements related to discretionary accruals. Finally, the study advises policymakers to enhance regulatory frameworks and emphasize ESG performance since it improves firms' social responsibility and can mitigate unethical financial practices.

## References

- Al Amosh, H., & Khatib, S. F. (2023). COVID-19 impact, financial and ESG performance: Evidence from G 20 countries. *Business Strategy & Development*, 6(3), 310-321.
- Albuquerque, R., Koskinen, Y., Yang, S., & Zhang, C. (2020). Resiliency of environmental and social stocks: An analysis of the exogenous COVID-19 market crash. *The Review of Corporate Finance Studies*, 9(3), 593-621.
- Aqabna, S. M., Aga, M., & Jabari, H. N. (2023). Firm performance, corporate social responsibility and the impact of earnings management during COVID-19: evidence from MENA region. *Sustainability*, 15(2), 1485.
- Barber, B. M., & Lyon, J. D. (1996). Detecting abnormal operating performance: The empirical power and specification of test statistics. *Journal of Financial Economics* 41(3), 359-399.
- Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research*, 15(1), 1-24.
- Beneish, M. D. (1999). The Detection of Earnings Manipulation. *Financial Analysts Journal* 55(5), 24-36.
- Broadstock, D. C., Chan, K., Cheng, L. T., & Wang, X. (2021). The role of ESG performance during times of financial crisis: Evidence from COVID-19 in China. *Finance research letters*, 38, 101716.
- Brown, T. J. (2014). Advantageous Comparison and Rationalization of Earnings Management. *Journal of Accounting Research*, 52(4), 849-876.
- Cassell, C. A., Myers, L. A., & Seidel, T. A. (2015). Disclosure transparency about activity in valuation allowance and reserve accounts and accruals-based earnings management. *Accounting, Organizations and Society*, 46, 23.
- Chen, R. C. Y., & Hung, S.-W. (2021). Exploring the impact of corporate social responsibility on real earning management and discretionary accruals. *Corporate Social Responsibility and Environmental Management*, 28(1), 333-351.
- Chintrakarn, P., Jiraporn, P., & Kim, Y. S. (2018). Did Firms Manage Earnings more Aggressively during the Financial Crisis? *International Review of Finance*, 18(3), 477-494.
- DeAngelo, H., DeAngelo, L., & Skinner, D. J. (1994). Accounting choice in troubled companies. *Journal of accounting and economics*, 17(1-2), 113-143.
- DeAngelo, L. (1988). Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Account Accounting and Economics*, 10(1), 3-36.

- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting Review*, 193-225.
- Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal of Accounting and Economics*, 25(2), 133-168.
- Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The accounting review*, 77(s-1), 35-59.
- Einhorn, E., Langberg, N., & Versano, T. (2018). Cross-Firm Real Earnings Management. *Journal of Accounting Research*, 56(3), 883–911.
- El-Feel, H. W. T., Mohamed, D. M., Amin, H. M., & Hussainey, K. (2024). Can CSR constrain accruals and real earnings management during the COVID-19 pandemic? An international analysis. *Journal of Financial Reporting and Accounting*, 22(1), 79-104.
- European Commission. Corporate sustainability reporting. (2024). [https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting\\_en](https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en)
- Fields, T. D., Lys, T. Z., & Vincent, L. (2001). Empirical research on accounting choice. *Journal of accounting and economics*, 31(1-3), 255-307.
- Fisher, T. C. G., Gavious, I., & Martel, J. (2019). Earnings Management in Chapter 11 Bankruptcy. *Abacus*, 55(2), 273–305.
- Freiberg, D., Rogers, J., & Serafeim, G. (2020). How ESG issues become financially material to corporations and their investors. *Harvard Business School Accounting & Management Unit Working Paper*, (20-056).
- Garel, A., & Petit-Romec, A. (2021). Investor rewards to environmental responsibility: Evidence from the COVID-19 crisis. *Journal of Corporate Finance*, 68, 101948.
- Global Industry Classification Sector (GICS®). (2023). Available at: <https://www.msci.com/documents/1296102/11185224/GICS+Sector+Definitions+2023.pdf/822305c6-f821-3d65-1984-6615ded81473?t=1679088764288>.
- Gopalan, R., & Jayaraman, S. (2012). Private Control Benefits and Earnings Management: Evidence from Insider Controlled Firms. *Journal of Accounting Research*, 50(1), 117–157.
- Graham, J. R., Harvey, C. R., & Rajgopal, S. (2004). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1), 3–73.
- Harymawan, I., Putra, F. K. G., Fianto, B. A., & Wan Ismail, W. A. (2021). Financially distressed firms: Environmental, social, and governance reporting in Indonesia. *Sustainability*, 13(18), 10156.
- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365-383.

- Hemingway, C. A., & MacLagan, P. W. (2004). Managers' Personal Values as Drivers of Corporate Social Responsibility. *Journal of Business Ethics*, 50(1), 33–44.
- Hou, Q., Jin, Q., Yang, R., Yuan, H., & Zhang, G. (2015). Performance Commitments Controlling Shareholders and Earnings Management. *Contemporary Accounting Research*, 32(3), 1099–1127.
- Hwang, J., Kim, H., & Jung, D. (2021). The effect of ESG activities on financial performance during the COVID-19 pandemic—Evidence from Korea. *Sustainability*, 13(20), 11362.
- Kim, S., & Li, Z. (2021). Understanding the impact of ESG practices in corporate finance. *Sustainability*, 13(7), 3746.
- Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility?. *The Accounting Review*, 87(3), 761-796.
- Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting & Economics*, 39(1), 163–197.
- Kothari, S. P., Mizik, N., & Roychowdhury, S. (2016). Managing for the Moment: The Role of Earnings Management via Real Activities versus Accruals in SEO Valuation. *The Accounting Review*, 91(2), 559.
- Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 Pandemic on Earnings Management: An Evidence from Financial Reporting in European Firms. *Global Business Review*.
- Lisin, A., Kushnir, A., Koryakov, A. G., Fomenko, N., & Shchukina, T. (2022). Financial stability in companies with high ESG scores: evidence from North America using the Ohlson O-Score. *Sustainability*, 14(1), 479.
- Lins, K. V., Servaes, H., & Tamayo, A. (2017). Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance*, 72(4), 1785-1824.
- Mao, Z., Wang, S., & Lin, Y.-E. (2024). ESG, ESG rating divergence and earnings management: Evidence from China. *Corporate Social Responsibility and Environmental Management*.
- McNichols, M. F. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors: Discussion. *The Accounting Review*, 77, 61–69.
- Northwestern Medicine. (2023, March). COVID-19 Pandemic Timeline. <https://www.nm.org/healthbeat/medical-advances/new-therapies-and-drug-trials/covid-19-pandemic-timeline>
- Pieters, L., Novak, D. R., Pankratz, D., & Rogers, S. (2022, June 17). *The cost of buying Green*. Deloitte Insights. <https://www2.deloitte.com/us/en/insights/industry/retail-distribution/consumer-behavior-trends-state-of-the-consumer-tracker/sustainable-products-and-practices-for-green-living.html>

- Prior, D., Surroca, J., & Tribo, J. A. (2008). Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility. *Corporate Governance: An International Review*, 16(3), 160–177.
- Selling sustainability: What consumers really want*. Financial Times. (2023, November 14). <https://channels.ft.com/en/ft-moral-money/selling-sustainability-what-consumers-really-want/>
- Velte, P. (2019). The bidirectional relationship between ESG performance and earnings management – empirical evidence from Germany. *Journal of Global Responsibility*, 10(4), 322–338.
- Walsh, M. W. (2020, June 18). A tidal wave of bankruptcies is coming. The New York Times. <https://www.nytimes.com/2020/06/18/business/corporate-bankruptcy-coronavirus.html>
- Yan, H., Liu, Z., Wang, H., Zhang, X., & Zheng, X. (2022). How does the COVID-19 affect earnings management: Empirical evidence from China. *Research in International Business and Finance*, 63.
- Zhang, Z., & You, J. (2024). Does firms' ESG information disclosure have contagion effect? Evidence from China. *Corporate Social Responsibility & Environmental Management*.

## Appendix

*Appendix 1. Mean Absolute Errors comparison between winsorized and non-winsorized variables for the regression Models (1), (2), and (3)*

| Variables                   | Mean   | Standard Error |
|-----------------------------|--------|----------------|
| (1) Abs_res_esg             | 0.0539 | 0.0020         |
| (2) Abs_res_win_esg         | 0.0423 | 0.0012         |
| (3) Abs_res_covid           | 0.0381 | 0.0014         |
| (4) Abs_res_win_covid       | 0.0359 | 0.0011         |
| (5) Abs_res_interaction     | 0.0381 | 0.0014         |
| (6) Abs_res_win_interaction | 0.0359 | 0.0011         |

*Note.* Rows 1 and 2 are mean absolute errors for winsorized and non-winsorized variables for Model (1). Rows 3 and 4 are mean absolute errors for winsorized and non-winsorized variables for Model (2). Rows 5 and 6 are mean absolute errors for winsorized and non-winsorized variables for Model (3). See the full variable description in Appendix 2

*Appendix 2. Variable Description and Source*

| Variable Name | Definition   | Source                                     |
|---------------|--|--|
| ABS_EM        | The absolute value of earnings management proxied by discretionary accruals using the modified Jones model, augmented by ROA | Calculated using data from Refinitiv Eikon |
| ABS_EM_Nic    | The absolute value of earnings management proxied by discretionary accruals using McNichol's (2002) model                    | Calculated using data from Refinitiv Eikon |
| ESG           | Refinitiv's ESG combined scores  | Refinitiv Eikon                            |
| Soc           | Refinitiv's Social pillar score  | Refinitiv Eikon                            |
| Env           | Refinitiv's Environmental pillar score   | Refinitiv Eikon                            |
| Gov           | Refinitiv's Governance pillar score  | Refinitiv Eikon                            |
| Covid         | COVID-19 dummy equals 1 if years=2020,2021,2022, 0 otherwise   |  |
| MTB           | Market value of equity / Book value of equity  | Calculated using data from Refinitiv Eikon |
| LEV           | Total Debt / Total Assets  | Calculated using data from Refinitiv Eikon |
| SIZE          | Natural logarithm of total assets  | Calculated using data from Refinitiv Eikon |
| BIG4          | Big 4 auditor dummy equals 1 if the company is audited by KPMG, Deloitte, EY, or PwC, 0 otherwise                            | Company's Annual Reports                   |
| Age           | Natural logarithm of age since the firm's initial public offering  | Calculated using data from Refinitiv Eikon |

*Appendix 2. (continued)*

|                         |   |  |
|-------------------------|---|--|
| Board                   | Total number of individuals on the board                        | Refinitiv Eikon                            |
| lagged_ESG              | Lagged values of ESG combined scores                            | Calculated using data from Refinitiv Eikon |
| Abs_res_esg             | Mean Absolute Error of Model (1) using non-winsorized variables | From the regression results                |
| Abs_res_win_esg         | Mean Absolute Error of Model (1) using winsorized variables     | From the regression results                |
| Abs_res_covid           | Mean Absolute Error of Model (2) using non-winsorized variables | From the regression results                |
| Abs_res_win_covid       | Mean Absolute Error of Model (2) using winsorized variables     | From the regression results                |
| Abs_res_interaction     | Mean Absolute Error of Model (3) using non-winsorized variables | From the regression results                |
| Abs_res_win_interaction | Mean Absolute Error of Model (3) using winsorized variables     | From the regression results                |

*Appendix 3. Random effects regression results for the relationship between COVID-19 and Earnings Management, calculated using McNichol's (2002) model*

| Variables               | ABS_EM_Nic            |
|-------------------------|-----------------------|
| Covid                   | 0.0054<br>(0.0037)    |
| MTB                     | 0.0008**<br>(0.0004)  |
| SIZE                    | -0.0059**<br>(0.0024) |
| LEV                     | 0.0204**<br>(0.0087)  |
| BIG4                    | -0.0021<br>(0.0103)   |
| Board                   | 0.0000<br>(0.0016)    |
| Age                     | -0.0096**<br>(0.0045) |
| Constant                | 0.1922***<br>(0.0499) |
| Adjusted R <sup>2</sup> | 0.0721                |
| Observations            | 558                   |

*Note.* This table presents the results of the robustness check for Model (1) where the absolute value of discretionary accruals is calculated using McNichol's model. The number of observations is 558 because of the inclusion of the lagged and future cash flow terms. Standard errors are in parentheses; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

*Appendix 4. The relationship between Earnings Management and each ESG individual pillar, Environmental, Social, and Governance scores*

| Variables               | [1]<br>ABS_EM         | [2]<br>ABS_EM         | [3]<br>ABS_EM         |
|-------------------------|-----------------------|-----------------------|-----------------------|
| Env                     | -0.0002<br>(0.0001)   |                       |                       |
| Soc                     |                       | -0.0004**<br>(0.0002) |                       |
| Gov                     |                       |                       | -0.0001<br>(0.0002)   |
| MTB                     | 0.0001<br>(0.0007)    | 0.0001<br>(0.0007)    | 0.0001<br>(0.0007)    |
| SIZE                    | -0.0014<br>(0.0073)   | -0.0016<br>(0.0073)   | -0.0020<br>(0.0072)   |
| LEV                     | 0.0031<br>(0.0273)    | 0.0034<br>(0.0273)    | 0.0017<br>(0.0276)    |
| BIG4                    | -0.0267**<br>(0.0139) | -0.0282**<br>(0.0135) | -0.0282**<br>(0.0136) |
| Board                   | -0.0006<br>(0.0019)   | -0.0005<br>(0.0019)   | -0.0008<br>(0.0019)   |
| Age                     | -0.0463*<br>(0.0255)  | -0.0461*<br>(0.0256)  | -0.0435*<br>(0.0264)  |
| Constant                | 0.2466<br>(0.1841)    | 0.2612<br>(0.1823)    | 0.2547<br>(0.1849)    |
| Year FE                 | YES                   | YES                   | YES                   |
| Adjusted R <sup>2</sup> | 0.01903               | 0.02186               | 0.01755               |
| Observations            | 882                   | 882                   | 882                   |

*Note.* Column [1] has environmental pillar scores as an independent variable. Column [2] has social pillar scores as an independent variable. Column [3] has governance pillar scores as an independent variable. Standard errors are in parentheses; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

*Appendix 5. Fixed effects regression results for the relationship between Earnings Management and lagged values of ESG combined scores*

| Variables               | ABS_EM                |
|-------------------------|-----------------------|
| lagged_ESG              | -0.0003<br>(0.0003)   |
| MTB                     | 0.0007<br>(0.0008)    |
| SIZE                    | 0.0002<br>(0.0088)    |
| LEV                     | -0.0010<br>(0.0268)   |
| BIG4                    | -0.0178<br>(0.0139)   |
| Board                   | -0.0027<br>(0.0021)   |
| Age                     | -0.0746**<br>(0.0304) |
| Constant                | 0.3176<br>(0.2140)    |
| Year FE                 | YES                   |
| Adjusted R <sup>2</sup> | 0.0266                |
| Number of Observations  | 735                   |

*Note.* lagged\_ESG represents lagged ESG combined score values. The total number of observations is reduced to 735 since lagging one variable resulted in a loss of 147 firm-year observations. Standard errors are in parentheses; \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.